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State of Utah

DEPARTMENT OF NATURAL RESOURCES

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Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

December 2, 2015

Jim Sorensen
Brown Canyon Stone Works, LLC
7684 Whileaway Road
Park City, Utah 84098

Subject: Third Review of Notice of Intention to Commence Large Mining Operations, Brown's Canyon Stone Works, LLC, Brown's Canyon Rock Quarry Mine, M/043/0021, Summit County, Utah

Dear Mr. Sorensen:

The Division of Oil, Gas and Mining has completed a review of the referenced Notice of Intention to Commence Large Mining Operations (Notice) which was received November 3, 2015. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address items requested in the attached technical review.

Please submit your response to this review by January 19, 2016.

The Division will suspend further review of the Notice until receiving your response to this review. Please contact the appropriate reviewer with questions about the review: Leslie Heppler (lah) at 801-538-5257, April Abate (aa) at 801-538-5214, Mike Bradley (mpb) at 801-538-5332, Lynn Kunzler (lk) at 801-538-5310, Wayne Western (whw) at 801-538-5263, or me (pbb) at 801-538-5261. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: lah: eb

Attachment: Review

cc: Summit County (SLewis@summitcounty.org)

Mike George and Harry Campbell, DEQ (mgeorge@utah.gov, hcampbell@utah.gov)

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Third Review
Page 2 of 8
M/043/0021
December 2, 2015

**THIRD REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS
Jim Sorensen-Brown Canyon Stone Works, LLC
Browns Canyon Stone Works Mine
M/043/0021
December 2, 2015**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1		The plan has been improved, but is difficult to review until a clear plan is presented by the operator, which includes the northwest areas angle of repose slope. Both volumes and areas will have to be modified accordingly in both the text and the figures.	lah	

R647-4-105 - Maps, Drawings & Photographs

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
2	Omission	<u>Previous comment:</u> Please show the location of the topsoil stockpiles. The location will affect the bond costs. <u>New comment</u> – Topsoil stockpiles listed as #2, #3 and #4 all note 2,100 cy of topsoil. This would equate to 56,700 cubic feet for each pile. Please check the piles shown with red circle to maximum height of piles.	lah	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
3	Page 6	<u>Previous comment:</u> Text will need to be modified to match changes in the maps <u>New comment</u> - All maps do not include the angle of repose slopes northwest of the equipment area, that need to be topsoiled and reseeded	lah lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
4	Exhibit C and other maps, text, and reclamation cost estimate	<p><i>Previous comment: Appropriate maps, text, and the reclamation cost estimate need to be updated to include the "Equipment Area (Non-Mine Parking)" within the site boundaries. This area is being used for the mining operations. The angle of repose outslope of the parking area to the northwest of the Equipment Area also needs to be included until the area has been properly graded and re-vegetated.</i></p> <p>Thank you for including the equipment area as part of the mine disturbance, but the outslope of the area northwest of the equipment area also needs to be included. Reclamation needed in this area includes reducing the slope and performing weed control.</p> <p>On Exhibit C the equipment area includes the label "(NON-MINE PARKING)." The equipment the Division has observed in this area is associated with mining, so this label should be removed.</p>	pbb	
5		Any areas of future expansion will need to have a cultural resource survey before being disturbed (comment only; no specific response needed).	pbb	
6	Exhibit D	<p><i>Previous comment: This map does not match what is on the ground. There are several stockpiles and roads which are not accounted for in the legend.</i></p> <p>See comment 4 above concerning the outslope of the pad northwest of the equipment area. This area needs to be included as part of the disturbance.</p>	lah pbb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
7	Exhibit E	<p><i>Previous comment: The reclamation map is incomplete. It does not show where soils will be redistributed and revegetation will be implemented. Include acreages of these reclamation activities on the reclamation map.</i></p> <p>Reclamation treatment areas have been delineated. However, the eastern-most area next to Brown's Canyon Rd. described as "reclaimed" is not shown on the map. Also, the slopes shown on E2 aren't correct. See other comments regarding this issue.</p> <p><u>New Comment</u> - Exhibit E2 has callouts using XH:YV, but the slopes along the profile line are in 1:x.y, (V:H). Please use the requested XH:YV format for all references to slope angles. Also, please indicate on which end of the sections A and A', and B and B' are.</p>	mpb mpb mpb & lah	
8	Page 6	<p><i>Previous comment: Text will need to be modified to match changes in the maps</i></p> <p><u>New comment</u> - page 6 e. Acres will need to be modified to be consistent with disturbance, which should include angle of repose slopes to the northwest adjacent to the highway.</p>	lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	Page 6	<i>Previous comment: There are numerous sources of older topographic and air photos showing the progression of mining in the area. Google Earth goes back to 1993 and shows a very limited mining footprint. Please revise the text to be accurate.</i>	lah	
		<i>In addition to the slope angles of the pit (already noted above), please include the slope angle of the fill adjacent to the roadway as a face angle of angle of repose (usually 37 degrees). The slope angle needs to be 2H:1V or 26 degrees for rock fill reclamation.</i>	lah	
		<u>New comment</u> –on page 6 h. The new statement is not consistent with the cross sections on exhibit E2. Cross sections show no angle greater than 2H:1V.	lah	

105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Exhibit A	<i>Previous Comment: Please limit to two photographs per page, as the resolution after scanning makes them difficult to view.</i>	lah	
		<i>Please label the direction from which the photograph was taken.</i>	lah	
		<u>New comment</u> - Thank you for labeling the direction of the photograph, but a few are incorrectly labeled; please correct	lah	

R647-4-106 - Operation Plan

106.3 - Estimated acreages disturbed, reclaimed, annually/sequentially

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
11	Page 7	<i>Previous comment : The table on page 7 needs to match Exhibits C & D.</i>	lah	
	Page 8	<i>Thank you for matching table with figure. When Exhibit C and D are correct, then the table will need to be updated to match.</i>	lah	
	Page 8	See comments 4 and 6 above. The table on page 8 will need to be modified to include disturbance in the outslope of the pad northwest of the equipment area.	pbb	

106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
12	Page 12	<p><u>Previous comment:</u> Cover values reported in the replaced vegetation survey only utilized 4 percent for the shrub component of the stand and identified it as the 'ground cover portion' (see page 10 of the vegetation report). Since most of the shrubs (as per photos) are fairly low growing, the total aerial cover of the shrub component should have been used. This would result in an overall average of 51% ground cover which is more accurate reflection of the vegetation in the area. This figure should be reported on page 12 as part of the vegetation summary.</p> <p><u>New Comment -</u> The changes made to the text missed the intent of this comment: instead of including the average ground cover (51%), the revegetation standard was changed from 70% to 51%. To correct this issue please consider replacing the first sentence in this section with: "The operator will re-establish at least 70 percent of the pre-mining vegetation ground cover of 51% , or 35.7% (70% of 51%)."</p>	lk	

106.8 - Depth to groundwater, extent of overburden, geologic setting

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
13	Page 12	<p><u>Previous comment :</u> Section 106.8 includes a new statement, "... not having any excessive slopes during mining operations," but there is currently wedge failure potential in the pit. Please correct the statement to be accurate.</p> <p><u>New comment :</u> Typo – As written "...safety." Please correct to "safety"</p>	lah	
14	Page 10	<p><u>Previous comment :</u> Please show the locations on the map where storm water is retained.</p> <p>The text notes several location for retaining storm water, but none of the locations are shown on Exhibit I.</p>	lah	
15	Page 10	<p><u>1st Review Comment:</u> The plan did not address in the narrative the extent of overburden or any description of the geology. Please provide a characterization of overburden extent and regional and site-specific geology.</p> <p><u>2nd Review Comment:</u> The extent of overburden characterization was not included in the latest response from the operator. Please update this information in the NOI.</p> <p><u>New Comments:</u></p> <ol style="list-style-type: none"> 1. The extent of overburden needs to be addressed in Section 106.8, and moved from Section 106.5. 2. According to Section 106.8, the geology figure is referenced as Exhibit G, which is incorrect. The geology figure is Exhibit F. Please correct the text. 3. The Tuffs North and East Mountain Meadow volcanics described in Exhibit F are found in the permit area. Do these beds overlie the Nugget Sandstone, and are they considered the overburden? Are these beds the same beds characterized as overburden in section 106.5 as being reported between 6-35 inches thick? A better characterization of the overburden is needed. Please update section 106.8. 	aa	

109.1 – Projected impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
16	Pg. 13	<i>Previous Comment : Please indicate on a map where the protective measures mentioned in this section are located or will be located. As an alternative to producing a new map, please provide a copy of the existing industrial stormwater permit through the Division of Water Quality that describes, in detail, protections in place and proposed to protect surface water systems.</i>	mpb	
	Pg. 15 & Exhibit I	<i>The only protective measures labeled on Exhibit I are 18-inch culverts. Please show check dam, berm, and other erosion control measure locations on the map. The 18-inch culverts should be shown as a dashed double line where they are installed and identified as such in the legend. Check dams, berms and other erosion control measures should also be included in the legend. The "Contour 10'" symbol (gray long dash/double short dash line) is missing from the legend.</i>	mpb	
		<u>New comment</u> - Please use standard graphic symbol for intermittent streams of a long dash/three dots (in AutoCAD, it's linetype ISO06W100, in ArcMap, it's "intermittent stream" in the ESRI symbol set). The Division also recommends fading the background image back to about 50% to make other features more readable. The use of a solid line for the culverts is OK since they are called out.	mpb	
17	Exhibit I	The SWPPP map is required to show surface water flow patterns using arrows, and must show both onsite stormwater collection/infiltration areas and points where concentrated surface runoff discharges to offsite locations. Please show these on this map. The disturbed area hatching should be reduced or eliminated for clarity.	mpb	
18	Page 15	<i>Previous Comments: The text states "Any water that does make it to the mine pit has been found to quickly infiltrate with no ponding observed." The infiltration of water into the groundwater of the State of Utah might require a permit from the Division of Water Quality. Please contact DWQ, both Stormwater and Groundwater sections.</i>	aa	
		<i>The text on page 13 section "e" also states "infiltrate quickly".</i>	lah	
		<u>New Comment:</u> The Division cannot approve a Notice until demonstration that all other state, local and Federal permits are in compliance as per R647-1-102.3. In this instance, the operator reported that the Stormwater permit was outdated and an update is in preparation. The operator also reported that whether or not the site requires groundwater discharge permits is still being investigated. Please provide the updated SWPPP as an appendix to this plan and a determination of whether or not the site needs a groundwater discharge permit, or is permitted by rule under the Division of Water Quality jurisdiction.	aa	
		UDWQ has clarified that collection and infiltration of stormwater does not require a groundwater discharge permit if the runoff has no exposure to fuels, oils or other hazardous materials.	mpb	

109.4 – Projected impacts on slope stability, erosion control, air quality, public health and safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
19	Omission	<i>Previous comment :</i> Please include a discussion in the text about the slope stability of the pit highwall.	lah	
	Page 18	Thank you for including a statement about highwall stabilization and public safety. Please modify the statement the statement to read “. . . process according to industry standards.”	lah	
		New comment: Please remove “. . . during stabilization process according to practices approved by the Division of Oil, Gas, and Mining and . . .” The statement should read “Public Safety will be observed and stabilization of the site will be done according to industry standard.”	lah	

R647-4-110 - Reclamation Plan

110.2 – Reclamation of roads, highwalls, slopes, impoundments, drainages, pits, piles, shafts, adits, etc

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
20	Page 17 b.	<i>Previous comment:</i> More information is needed on the reclamation for the highwall, as it greatly affects bond costs.	lah	
		As noted elsewhere, the exhibits and the text need to be consistent.	lah	
		New comment – Thank you for updating the cross section and page 17, but what is needed is the volume of earth moving that will be needed to make the proposed grade changes shown on Exhibit E2 versus the current pit shown in the bottom photo on page A-3.	lah	

110.4 - Description or treatment/location/disposition of deleterious or acid forming materials, including map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
21	Page 21	<i>Previous comment:</i> Section 110.3 says none of the facilities are expected to be left for post mining operations. How will the unpermitted parking area northwest of the Equipment Area be accessed following reclamation? Will it be necessary to leave access through the Equipment Area?	pbb	
		New comment: The response says the equipment area has been added to the area that needs to be reclaimed. This does not, however, show how the parking area northwest of the equipment area will be accessed after the equipment area is reclaimed. Will this parking area also be reclaimed (not as part of the mine), or will there be another access developed from the highway?		

110.5 - Revegetation planting program

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
22	Page 22	<i>Previous Comment: The revised seed mix is acceptable. However as an editorial comment, pure live seed is listed on the fifth line between Canby bluegrass and western yarrow. This is not a species but a description of seed purity and germination associated with the seeding rate. This line should be deleted.</i> <u>New Comment -</u> This was not done – (see seed mix on page 22)	lk	
	Page 21	<i>Previous comment - Please show the location of the 17,182 cubic yards of topsoil. This will affect the bond costs.</i>	lah	
		<u>New comment:</u> It is unclear from where the offsite topsoil would come. A borrow area would need to be located, permitted, and bonded as part of the mine disturbance. The Division discourages the use of soil borrow areas. It is usually possible to obtain and/or create adequate and suitable plant growth material from on site.	lah & pbb	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
23		<i>Previous comment : As of the last inspection, there is currently enough equipment on site that there would be more than eight trips to remove equipment and debris from the site.</i>	lah	
		<u>New comment -</u> Demolition sheet was not included for mining equipment.	lah	
24		Please include reclamation costs for the angle of repose outslope of the parking area to the northwest or the equipment area.	pbb	